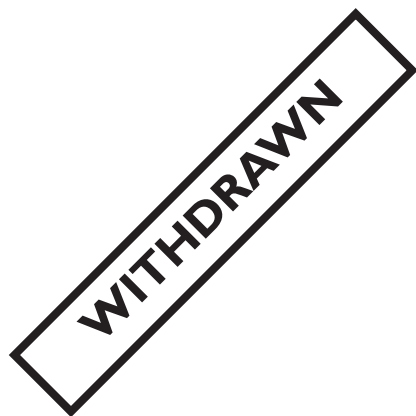


OBJECTIVE: Determine whether physicians spend more time with patients prescribed high-risk medications—anticoagulants, anticonvulsants, antiarrhythmics, antidiabetics and beta agonists—that require either additional patient education about correct use and adverse effects or increased monitoring by providers. **METHODS:** Patient visit data to physicians from the 2003 National Ambulatory Medical Care Survey (n = 17,078) were used in multiple regression (SPSS 12.0, $\alpha = 0.05$). Visit time was the dependent variable. Independent variables included indicator variables for prescribing each high-risk medication and visit circumstances hypothesized to require more time—1) patient was new to the practice; 2) patient's condition was new; and 3) physician was not the patient's primary physician. Interactions between high risk medication prescribing and visit circumstances were also examined. Control variables included modified Charlson index, diagnostic and counseling services provided, patient and provider demographics. **RESULTS:** Visits lasted an average of 19 minutes. Significantly higher visit times were found for patients prescribed either anticonvulsants, anticoagulants or antidiabetics. Visit times were additionally higher if 1) the condition was new and the patient was prescribed anticonvulsants or antidiabetics, or 2) the patient was new to the practice and was prescribed anticonvulsants. Patients not seeing their primary physician had lower visit times if they were prescribed anticoagulants or antidiabetics. No visit time increases were associated with antiarrhythmics or beta agonists. **CONCLUSION:** Visit times increased with the prescribing of certain high-risk medications in our study and during certain visit circumstances. However, increases were not uniformly found across all high-risk medications examined. This gap in care suggests that less expensive healthcare providers like pharmacists are needed to enter into collaborative working relationships with physicians to provide counseling, education and monitoring for these medications.

PHP29



INFECTION—Clinical Outcomes Studies

PIN1

HEPATOTOXICITY ASSOCIATED WITH RIFAMPIN AND PYRAZINAMIDE THERAPY OF LATENT TUBERCULOSIS INFECTION: A META-ANALYSIS

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OBJECTIVES: Observational studies individually don't shed much light on the association of hepatotoxicity with rifampin and pyrazinamide (RPZ) therapy. The following a priori hypotheses were tested: 1) Every study will have an effect size greater than one; 2) Effect size will vary depending on head count for various risk factors; 3) Intensive monitoring of RPZ therapy reduce hepatotoxicity. In addition to research hypotheses the following research questions were identified: 1) Who are at greater risk of having hepatotoxicity; 2) Is alcohol an effect modifier or a confounder? **METHODS:** For this research only the observational studies were selected. Electronic searches of MEDLINE (1980 to Aug 2005) were carried out to identify relevant papers. An instrument was devised to assess the quality of the selected studies which measures the quality of the study in range of 1–10. Consistency of the items included in the instrument was described by Cronbach's α (0.7). Review Manager 4.2 (Cochrane Collaboration Center) used to do the meta-analysis. Regression analysis was performed to find relationship between effect size and certain risk factors. **RESULTS:** The odd ratio of the pooled data is 2.98(2.16–4.11). One of the studies has an effect size of 0.71(0.22–2.27). The odd ratio for risk factors are: liver disease-5.14(1.64–16.10); race-1.85(0.88–3.91); gender-1.66(0.87–3.15); alcohol-1.51(0.82–2.75); age-1.15(0.51–2.62). The odd ratios across the alcoholics and non alcoholics strata are equal. The odd ratio of hepatotoxicity is 0.54(0.21–1.37) among patients who underwent intensive monitoring of RPZ therapy. The R square of the regression for the relationship between effect size, female and non blacks is 0.94. **CONCLUSIONS:** The meta-analysis of data shows that RPZ users are at higher odd of having hepatotoxicity. The effect size is related to number of female and non black patients included. Female, older, black, and alcoholic are at higher risk. Alcohol is a confounder. Monitoring does reduce the cases of hepatotoxicity.

INFECTION—Cost Studies

PIN2

COST COMPARISON OF A ONCE-DAILY PARENTERAL ANTIBIOTIC IN HOSPITAL SETTINGS: INFORMATION FROM THE SIDESTEP STUDY

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OBJECTIVES: Diabetic foot infections (DFI) account for more hospital days than any diabetes-related diagnosis. Many patients

with DFI are Medicare-eligible, and hospitals are motivated to decrease costs without altering patient outcomes. A large, multicenter, randomized, double-blind trial (SIDESTEP) comparing ertapenem (1g QD) and piperacillin/tazobactam (3.375g QID) found equivalent efficacy in the treatment of DFI. **METHODS:** Individuals enrolled in SIDESTEP, treated entirely as inpatients, and clinically evaluable at final assessment (10 days after completing antibiotic therapy; n = 99) were included. Cost per dose was calculated from a) average actual hospital acquisition price/dose (IMS Health, National Sales Perspectives) for 2005 in U.S. dollars for ertapenem (\$40.52) or piperacillin/tazobactam (\$13.58); b) average U.S. wage and benefits for labor, based a review of 10 time-and-motion studies of intravenous antibiotic drug preparation and administration (\$3.03); and c) consumable supplies, using a 40% discount off manufacturer list price in the 2005 Redbook (\$2.52). For each patient, actual doses (either ertapenem or piperacillin/tazobactam) was multiplied by total cost per dose (ertapenem = \$45.23; piperacillin/tazobactam = \$19.13). **RESULTS:** No differences with respect to demographics, mean length of treatment or wound severity were noted (intravenous therapy days: ertapenem = 6.6; piperacillin/tazobactam = 6.4); (wound severity: ertapenem = 29%; piperacillin/tazobactam = 26% severe). Differences were significant with respect to mean doses of active drug (ertapenem = 7.6; piperacillin/tazobactam = 25.7; $p < 0.0001$) and costs (ertapenem = \$352.11; piperacillin/tazobactam = \$491.20; $p = 0.018$). The \$139.10 difference between groups accounts for approximately 3% of total hospital DRG reimbursements for Medicare patients. **CONCLUSIONS:** Once-daily dosing of ertapenem offers the advantage of less cost to hospitals, compared to QID dosing for piperacillin/tazobactam, without compromising efficacy or safety.

PIN3

THE COST OF TREATING RIBAVIRIN-INDUCED ANEMIA IN HEPATITIS C: THE IMPACT OF USING RECOMBINANT HUMAN ERYTHROPOETIN

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OBJECTIVES: Ribavirin-induced anemia is a common adverse effect of chronic hepatitis C treatment. Pilot studies have shown that the use of epoetin has decreased the need for ribavirin dose reduction or discontinuation. Our goal was to calculate the incremental cost-effectiveness of using epoetin to treat ribavirin-induced anemia, per ribavirin dose reduction or discontinuation averted. Our secondary aim was to calculate the incremental cost of hepatitis C treatment, comparing those who developed anemia to those who did not, using each of two strategies: ribavirin dose reduction/discontinuation or epoetin. **METHODS:** Using estimates from the literature and decision-analytic techniques, we modeled treatment patterns and estimated the cost of managing ribavirin-induced anemia. One-way sensitivity analyses were used to address uncertainty. **RESULTS:** Clinically significant anemia, defined as a 2 g/dL or greater reduction in hemoglobin, developed in approximately 72% of patients in observational studies. The cost-effectiveness of using epoetin to treat ribavirin-induced anemia ranged from \$39,579 (severe anemia, genotype-2/3) to \$52,200 (moderate anemia, genotype-1), per ribavirin dose reduction/discontinuation averted. The incremental cost of treating hepatitis C, comparing patients with anemia to those without, using ribavirin dose reduction/discontinuation saved \$2742 (genotype-1) and \$323 (genotype-2/3); when using epoetin; the additional cost was \$2075 and \$5501, for genotype-1 and genotype-2/3 patients, respectively. **CONCLUSIONS:** The incremental cost of treating ribavirin-induced anemia is

minimal, and varies with the probability of developing anemia. However, once anemia has developed, the cost of using epoetin per ribavirin dose modification averted is substantial; and varies with the probability of response to epoetin. These findings suggest that additional studies are warranted that will define both genotype-specific strategies to treat ribavirin-induced anemia and the optimal use of epoetin as adjunctive therapy in patients with chronic hepatitis C.

PIN4

ECONOMIC ANALYSIS OF LATENT TUBERCULOSIS INFECTION (LTBI) SCREENING IN MILITARY RECRUITS: QUANTIFERON®-TB GOLD IN-TUBE (QFT-GIT) VERSUS TUBERCULIN SKIN TESTING (TST)

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OBJECTIVES: Military recruits undergo screening for LTBI at accession with TST. The low specificity of TST results in false positives and unnecessary LTBI treatment. A highly specific whole blood assay for the diagnosis of LTBI exists (QFT—GIT, Cellestis) pending FDA approval. Unlike TST, administration of QFT-GIT at application to military service is feasible and would permit exclusion of LTBI positives. We investigated the potential cost savings of implementing universal application QFT-GIT testing with or without confirmatory accession QFT-GIT testing and treatment, to determine whether QFT-GIT testing costs are offset by reduced LTBI treatment costs. **METHODS:** A decision tree was constructed to model the direct costs of TST testing and LTBI treatment of accessions versus the costs of alternative policies of QFT-GIT applicant testing with or without confirmatory accession QFT-GIT testing and treatment. Average LTBI treatment costs per positive test were expressed as a ratio to the cost of QFT-GIT testing (treatment: cost ratio). Costs of administering and reading a TST were assumed to be zero, and QFT-GIT costs were normalized per accession. **RESULTS:** Applicant QFT-GIT testing was economical over TST above a treatment: cost ratio of 52:1, while confirmatory QFT-GIT testing was economical over TST above a treatment:cost ratio of 108:1. In two-way sensitivity analysis, threshold ratios decreased with increasing LTBI prevalence and increasing probability of accession and were relatively insensitive to uncertainty in test characteristics. **CONCLUSIONS:** Application QFT-GIT results in fewer LTBI positive accessions and should be implemented if cost-beneficial. Quantification of the direct costs of LTBI treatment are needed to determine the maximum cost of QFT-GIT testing to economically implement this policy, and whether improved sensitivity can be economically achieved with confirmatory QFT-GIT testing.

PIN5

COST EFFECTIVENESS OF ADDING 7-VALENT PNEUMOCOCCAL CONJUGATE VACCINE TO A CHILDHOOD VACCINATION—IMPACT OF HERD IMMUNITY

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OBJECTIVES: Streptococcus pneumoniae is a leading bacterial cause of septicaemia, meningitis, pneumonia and otitis media and may cause severe sequelae or death. A 7-valent conjugate pneumococcal vaccine (Prevenar) has proved effective in preventing otitis and invasive pneumococcal disease (IPD) in children. A reduction in IPD has also been observed in some adult age groups, possibly due to herd immunity. The aim of this study was to explore the cost-effectiveness of vaccination of infants in Norway. **METHODS:** The study was based on a Markov-model